

THE NATIONAL FLOOD INSURANCE PROGRAM

FLOOD MITIGATION ASSISTANCE PROGRAM

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**GUIDANCE FOR DEVELOPING A PRE-DISASTER FLOOD
HAZARD MITIGATION PLAN**

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Preface

South Dakota in the past has suffered millions of dollars in damages due to flooding. The impact of future flood disasters will depend largely upon where they occur. Losses are generally greater in urban areas with population as well as structural development at risk in both residential and commercial locations.

In the past, the Federal Emergency Management Agency (FEMA), the State of South Dakota, its Division of Emergency Management (SDDDEM), and other State Agencies and organizations have responded to disasters, providing assistance to people in terms of food, shelter, clothing and restoration of public and private facilities. Since these efforts are vitally important, they will continue.

If we do no more than respond to disasters, the problems can return and we will not have learned from our mistakes. Mitigation means that we are going to learn from past mistakes and avoid repeating them. FEMA's newly created Flood Mitigation Assistance (FMA) Program will allow communities to develop ***Pre-Disaster Flood Hazard Mitigation Plans*** that will contain strategies, approaches, actions and recommendations for projects to mitigate and reduce future flood losses. Long range planning is one of the keys to breaking the disaster-recovery-disaster cycle. Once a South Dakota community has implemented pre-disaster flood mitigation measures, it will better withstand the kind of economic distress, endangerment to life and environmental degradation that have occurred in the past.

Floodplain Management

A comprehensive floodplain management program is necessary for the long-term success of a community's flood mitigation strategy. Floodplain management is a continuous decision making process involving the wise use of identified floodplains. It encompasses:

- 1) the choices made by owners of floodplain homes and businesses,
- 2) decisions made by officials at all levels of government,
- 3) development plans made by owners of commercial floodprone land, and
- 4) the judgments of farmers with pastures and fields bordering riverbanks.

The success of floodplain management depends on the collection and utilization of engineering and administrative information. Sound floodplain management improves the decision-making process for usage of floodplain land. Effective management requires prompt but careful decisions that are compatible with the risks and resources inherent to floodplains. If such decisions are not made, unwise development or other uses could occur that will prove costly in the long run. Unacceptable high costs can be avoided by having a plan and implementing it.

A Flood Mitigation Plan is both a process and a document showing the planning process used. With that in mind, these are minimum requirements and recommendations:

Planning Grant Requirements

In order to receive FEMA approval, the local Flood Mitigation Plan must, at a minimum, have the following elements in the planning process:

- Involve the public
- Coordinate with other agencies or organizations
- Assess the flood hazard and risk
- Establish floodplain management goals
- Develop possible mitigation actions
- Adopt the plan

The written plan must have the following:

- Description of the planning process and public involvement.
- Description of the existing flood hazard and identification of the flood risk, including estimates of the number and type of structures at risk, repetitive loss properties, and the extent of flood depth and damage potential.
- Floodplain management goals for the area specified in the plan.
- Identification of and evaluation of cost-effective and technically feasible mitigation actions.
- Presentation of the strategy for reducing flood risks and continued compliance with the NFIP, and procedures to ensure implementation, review, and revision of the plan.
- Documentation of a formal plan adoption by the legal entity submitting the plan.

Written Plan Recommendations

The plan may be presented in any format. The *suggested* outline is as follows:

1. Table of Contents
2. Introduction
3. Planning Process and Public Involvement
4. Past Flood Hazard Mitigation Activities
5. Hazard Identification and Current Problem Statement
6. Floodplain Management Goals and Mitigation Activities
7. Budget
8. Action Plan Recommendations
9. Post-Flood Activities
10. Implementation and Evaluation
11. Attachments

Introduction

<p><i>In the Flood Mitigation Plan introduction include a short description of the community, the flood related issues and the purpose of the plan. (See example narrative in APPENDIX A)</i></p>

Planning Process and Public Involvement

A description of how the planning process is needed to obtain FEMA recognition of the plan. The NFIP Reform Act specifically states that there shall be a planning process to develop a pre-disaster flood hazard mitigation plan. Monetary assistance from FMA project grants is contingent upon development of a plan that had a planning process component with public involvement.

Include in this section of your written plan a description of the planning process that was used, the coordinating and resource agencies, other community plans considered, and how the public was involved in the planning process.

Coordination:

Experience has shown that mitigation plans get implemented when flood concerns are allied with other community needs and goals and other agency's programs. Coordination insures that mitigation activities do not conflict with other plans. Coordination also facilitates the sharing of limited funds and resources to accomplish goals in the plan. Usually there are citizens who want more and better parks in the community. Funding programs for these activities might be used to assume the cost of acquiring floodprone structures in a community's flood hazard areas when parks are proposed for these areas. Coordination also helps individuals maintain interest in projects that may take a long time to accomplish. Lastly, funding programs may require applicants to have their programs coordinated with other agencies. Often other sources of funding must be exhausted before other program funding can "kick in". Both of these needs can be met through coordination among all parties.

Community Needs and Goals:

A flood hazard mitigation plan must be consistent with, and even supported by, other plans for the community. Flood hazard mitigation planning should be integrated into existing planning efforts so that flood issues are incorporated into a community planning staff's regular duties.

Other Resource Agencies:

Many agencies can impact future activities in a community's flood hazard area. A planner or community official needs to contact these agencies during the hazard inventory and problem assessment phase of plan development to determine if they have information that can help the planning effort.

Coordination with other agencies can be combined with technical assistance. For example, during the discussions on emergency services, the planner can invite the National Weather Service (NWS) to the committee meeting. The NWS can advise the planners about flood warning and how to establish the system. At the same time, the planner can advise the NWS about the local flood situation and determining if there are plans for installing warning gauges in the area.

Public Input Workshop:

Public officials' concerns about flooding and mitigation don't always mesh with the concerns of private citizens. The concerns of citizens must be incorporated into the Pre-

Disaster Flood Hazard Mitigation Plan. This method embodies the "bottom-up partnership" approach to floodplain planning. This process begins with a facilitated workshop that can last several days. The workshop can involve as many as 50 people representing residents, business interests, public interest organizations and local and regional governmental agencies. The agenda includes the identification of the flood problem and assembling ideas for solving it. In the process, other community needs and goals are discussed and incorporated. Only a few of the affected residents may be able to participate on a planning committee that meets for several days. It is important to let all citizens have an opportunity to review and comment on the draft plan. Therefore, a public meeting is recommended even when there is a planning committee that incorporates public involvement.

The public needs adequate notice and information about the plan well before the public meeting. A legal notice on the front page of the community newspaper is good. But, notices that are sent to individual floodplain residents are better. People should also be notified as to where they can obtain a copy of the draft plan before the public meeting. At least one public meeting to obtain public input should be held two weeks prior to submittal of the recommended plan to the community's governing body.

Past Flood Hazard Mitigation Activities

In this section describe any mitigation activities the community has already accomplished. Include both Non-structural and Structural. Examples of Non-structural would be flood insurance, floodplain regulations, acquisition and relocation, open space policies, local zoning laws, etc. Examples of structural activities include levees, dams, channel improvements, and retrofitting of floodprone buildings. (See example narrative in APPENDIX B)

Hazard Identification and Current Problem Statement

Hazard Identification:

The first step in the flood hazard inventory process is to define the flood hazard. To undertake this process, one should review the flood history of the community. One important area of focus should be repetitive loss areas.

Flood Hazard Data May Include:

Sources of Water: The names of rivers and lakes as well as other sources of local drainage, ponding, and stormwater runoff.

Depth of Flooding: No flood hazard area can be considered safe; however, flooding over three feet is more hazardous. Areas subject to such depths should be identified.

Velocities: Flood water velocities over 5 feet per second are most hazardous especially when combined with deep flooding. Since velocity data is often hard to obtain and can include inaccuracies, the following rule of thumb should be used for planning purposes: 1) One foot deep - no vehicles; and 2) three feet deep - no people.

Repetitive Loss Areas: Repetitive losses account for one third of all NFIP flood insurance claims. Areas of repetitive loss should be identified. Such information can be obtained from FEMA's Regional Offices or from the State NFIP Coordinator.

Include in your written plan:

- *Short history of flooding events*
- *Description of the identified flood hazard areas*
- *Documentation used to make this determination*
- *Description of severity of flooding to include flood depth and damage potential*
- *Estimates of the number and type of structures at risk*
- *Number and type of repetitive loss properties*

(See example narrative in APPENDIX C)

Additional Issues:

A systematic inventory of everything located in the flood hazard area is needed to insure that all potential problems are addressed in the Local Pre-Disaster Flood Hazard Mitigation Plan. Development trends and development constraints should be included in the plan. Because of map inaccuracies, areas near the flood hazard area should be considered for inclusion as well.

Land Use and Buildings: An inventory should describe how the community's flood hazard areas have been developed and how many buildings are affected. A count of the buildings affected by flooding is essential. Windshield surveys or aerial photos can be used. Any flood damage data available from previous flood events will be helpful in project prioritization.

Critical Facilities: A critical facility is a building or site that would constitute a major impact to the community if flooded. Consider facilities that will increase the hazard if flooded, such as a hazardous materials storage site. Consider also facilities that are vital to the flood fighting effort such as the community's emergency operations center. Roads and bridges can also be considered critical if they would prevent emergency vehicles from accessing threatened areas.

Natural Areas: Flood hazard areas often contain wetland and undeveloped areas that carry the majority of floodwaters and provide "natural and beneficial functions". Most often, attention is focused on existing structures and infrastructure such as power substations and water lines during a flood event. However, many of the undeveloped areas are irreplaceable. Preserving their functions pays off in the long run and not developing them may actually increase property values. An inventory of these areas is an important part of the community's plan. The Environmental Protection Agency and U.S. Army Corps of Engineers are two agencies where such information can be obtained.

Future Development: The plan needs to look at 1) present day conditions, and 2) development potential of vacant land. Zoning, building and subdivision regulations usually have the greatest impact on development trends. The local planning process needs to consider whether current community regulations are appropriate for the types of expected development. Development trends can be used to determine what is likely to be in the floodplain in the future.

Problem Statement:

The culmination of the hazard inventory and the problem assessment is a written problem statement. It summarizes the hazard and identifies the most hazardous areas. The community's floodplain map with hazard data is essential.

The problem statement should address all areas of concern including buildings, critical areas, etc. Then, the problem statement should be prioritized. This may be based on 1) areas with greatest numbers of buildings at risk, 2) areas with deepest flood depths, 3) flood flows with highest velocities, and so on. The problem statement is a summary of the impact of the hazard on the community. Since all problems can't be addressed at once, areas or issues of concern need to be prioritized. (See example statement in APPENDIX D)

Floodplain Management Goals and Mitigation Activities

This section of your written plan should: 1) describe floodplain management goals for the areas covered by this plan, 2) describe the processes used to identify and evaluate cost-effective and technically feasible mitigation actions, 3) include a description of mitigation projects the community will actively pursue, describing the benefits of these projects and their cost-effectiveness. Be sure to specifically address the project(s) for which the community is seeking FMA funding. (See example narrative in APPENDIX E)

While working through this part of the planning process keep in mind the four basic mitigation strategies: 1) Prevention, 2) Property Protection, 3) Flood Control, and 4) Emergency Services. Each strategy has different measures that are appropriate for different conditions:

Prevention: Planning, acquiring, or regulating land development to keep problems from getting worse. The building, zoning, planning or code enforcement offices usually administer preventive measures.

Property Protection: Protecting individual buildings or properties from flood damage. Property protection measures are usually the responsibility of property owners, although government agencies can provide information and technical or financial assistance to the owners.

Flood Control: Keeping floodwaters away from an area. Flood control projects are usually designed by engineers and managed by public works staff. There are basically two types: structural and non-structural.

Emergency Services: Measures that are taken before, during, and after a flood to minimize impact. These measures are the responsibility of emergency management staff and the owners or operators of critical facilities.

When selecting appropriate measures, know that some measures will be eliminated during the planning process. They will be obvious and easy to implement. However, the

plan should still systematically review each proposed flood mitigation measure and discard it only after the following questions are answered in the negative:

- Is the measure technically appropriate for the hazard?
- Is the measure appropriate for the community's needs and goals?
- Is the measure affordable?
- Do the measure's benefits compare favorably to the cost of the measure?
- Will the measure comply with all local, state and federal regulations?
- Does the measure have a beneficial or neutral impact on the environment?

Budget

The plan should determine how recommendations would be financed. Financial feasibility is essential. Generally there are four sources of funding for recommended projects:

- 1- Operating Funds
- 2- Line item appropriations
- 3- Bond issues
- 4- Outside funding

Action Plan Recommendations

When selecting the appropriate mitigation measures, it should be determined 1) what will be done, 2) by whom, 3) when, and 4) how it will be financed. The result will be a specific list of projects, and project assignments.

Include in your written plan your list of recommendations. Include what, whom, when, and the budget amount for each recommendation. (See example narrative in APPENDIX F)

Post Flood Activities

A pre-flood plan should include a section that addresses post-flood operations and activities. Post-disaster procedures should be discussed with appropriate emergency response personnel before completion.

Two items need to be included in the post-disaster section: 1) identification of post-flood mitigation opportunities, and 2) responsibilities for post-flood mitigation activities.

Circulating The Draft

The draft action plan should be publicized and circulated among affected entities such as state and federal agencies, neighboring communities and other departments in community government. Written concurrence of community agency heads should be secured.

The draft should be made available for review by affected citizens and businesses. The public meeting part of the review process should occur no sooner than two weeks after citizens have had a chance to perform their review. After the meeting, appropriate changes should be made and submitted to the community's governing body for adoption.

Adoption

The recommendations usually involve more than one department in the community. Therefore, the plan needs to be adopted by the community's governing body. The resolution to adopt the plan should contain the following:

- Official adoption of the plan and its recommendations,
- Designation of someone who will insure plan implementation,
- Designation of priority recommendations, and
- Proviso for implementation progress reports.

In your written plan include a copy of the document(s) showing official adoption of the plan.

Implementation and Evaluation

The community's resolution to adopt the plan should identify one individual with overall responsibility for implementation of the program. Persons involved in the implementation of the program should definitely be involved in the planning process. Inexpensive but locally visible projects should be implemented quickly so the public sees that the community is responsive to the plan. A monitoring system of program implementation should be established to track individuals' assignment progress. As a plan is implemented it should be periodically evaluated. It may be determined after a time that the public works department would better accomplish a certain activity than the engineering department. Such changes need the appropriate approval from the community's governing body.

Include in your written plan:

1. *The name, title, department, address and phone number of the individual(s) responsible for implementation of the plan.*
2. *Description of monitoring system.*
3. *Description of evaluation system.*

Responding To Opportunities

A community should always be ready to act quickly to take advantage of opportunities provided by disasters, heightened public interest due to flooding elsewhere or extra year-end money.

Although it is not required, you may want to address these issues in your written plan.